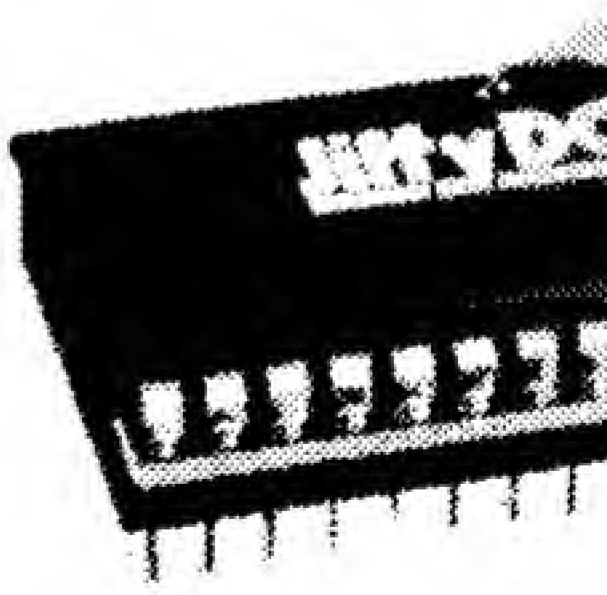
Jiffy



User's M

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CMD

JiffyDOS™

User's Manual

Copyright Notice

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INTRODUCTION

Getting Started

When you first receive your JiffyDOS system, you will probably be anxious to install it and to start taking advantage of the speed increases that JiffyDOS provides. Before beginning, however, please note that installing JiffyDOS requires the partial disassembly of your computer and disk drive(s). While this does not require a knowledge of electronics, it does require some manual dexterity to perform. Read through the installation instructions carefully before starting. If you do not feel confident about installing JiffyDOS yourself, refer installation to a qualified technician, or take advantage of Creative Micro Designs' installation service.

Also, please be aware that installing JiffyDOS will void any factory warranty applicable to your computer or disk drive. If you are concerned about voiding your warranty, you may want to delay installing JiffyDOS until your warranty period has expired (Commodore normally warrants their equipment for a period of 90 days).

After you have installed JiffyDOS

After you have installed JiffyDOS, please take the time to become familiar with this manual. It describes the many commands and features of your JiffyDOS system, and gives you instructions on how to use them. You will also find information that will help you get the most performance out of JiffyDOS. If you experience any problems when using JiffyDOS, please check the manual - it may provide you with the information that you need to solve the problem.

Getting Help

If you run into any problems or have any questions about the installation or operation of JiffyDOS, please feel free to contact Creative Micro Designs. We will be glad to assist in any way we can. Our address and phone number are listed below:

Creative Micro Designs, Inc.
P.O. Box 646
East Longmeadow, MA 01028

Phone: (413) 525-0023 (1 PM - 5:30 PM EST)

Installation Service

Creative Micro Designs offers a JiffyDOS installation service. If you would like us to install JiffyDOS in your computer and/or disk drive, please contact us for information and prices.

What this Manual Includes

This manual gives you complete instructions on how to use your JiffyDOS system.

Section 2, "What is JiffyDOS?", describes the performance and other features of JiffyDOS.

Section 3, "Using JiffyDOS", gives you instructions on how to enable and disable JiffyDOS, how to use the JiffyDOS function keys, how to control listings and how to get the most performance out of your system.

Section 4, "The JiffyDOS Commands", provides a description of each JiffyDOS command.

The JiffyDOS Guarantee and Warranty are included at the back of this manual.

SECTION 2
WHAT IS JIFFYDOS?

JiffyDOS is an enhanced Disk Operating System (DOS) for Commodore C-64, SX-64, and C-128 computers. Programmed onto ROMs that replace the Kernal ROM(s) in your computer and the DOS ROM in your disk drive, JiffyDOS provides the speed, commands and convenience missing on stock systems. Because it is ROM-based, JiffyDOS becomes an integral part of your system, and is able to provide performance without the compatibility problems of Cartridges and other speed-enhancement systems.

Features

Uses no ports or cabling

JiffyDOS installs without any extra cabling between your computer and disk drive(s), and does not tie up the Cartridge, User or Cassette ports. This enables compatibility with all hardware devices (such as modems, memory expansions, etc.), and gives JiffyDOS an advantage over cartridge speedups and other hardware upgrades (*RapiDOS, 1541 Flash!, DigiDOS, Dolphin DOS*) which require extra cabling that plugs into one of the ports on your computer.

Built-in DOS Wedge commands

JiffyDOS includes a complete, built-in implementation of the Commodore DOS 5.1 Wedge command set. The DOS Wedge provides simple, easy-to-learn commands that eliminate the need to type complicated instructions when you need to perform common disk operations such as scratching files and formatting disks. The JiffyDOS version of the Wedge also includes a series of enhancements that make it easier to use the commands within BASIC programs.

Additional JiffyDOS commands

In addition to the standard DOS Wedge, JiffyDOS includes a number of special commands that make using your computer even easier. The JiffyDOS commands all use the familiar DOS Wedge syntax, and enable you to perform functions such as disabling the head rattle (bump) on 1541s, locking and unlocking files, listing files directly from disk, "un-NEWing" BASIC programs and dumping the screen to a printer.

Convenience features

JiffyDOS provides a full complement of convenience features that enable you to list the directory without disturbing memory; to load and run the first program on disk; and to pause, inspect and restart BASIC or JiffyDOS listings. In addition, JiffyDOS includes a full set of function key definitions that work along with the directory listing to eliminate the need to type lengthy filenames when loading, saving, or scratching files.

Does not bypass error checking

All JiffyDOS operations retain the built-in DOS error checking and correction routines that are a necessary part of any reliable data storage system. While other speedup systems and utilities (i.e. the ones boasting 10-second formats) bypass these routines, JiffyDOS provides speed without jeopardizing the integrity of your data.

Incorporates the latest Commodore upgrades

When you purchase JiffyDOS, the ROMs you receive have been programmed to include the latest Commodore upgrades. The JiffyDOS ROM for the 1571 eliminates bugs affecting Relative files, drive initialization, etc. and has also been modified to solve the problems with disk backup utilities (*Fast Hack'Em, Copy II-64/128,* etc.) caused by the Commodore upgrade. The JiffyDOS Kernal ROM for the C-64 is based on the latest version, as are the 64- and 128-mode Kernal ROMs for the C-128.

Performance

Speeds up all disk operations

JiffyDOS has been designed to speed up all operations on 1541, 1541 compatible, 1571 and 1581 disk drives. This includes the initial loading of all types of programs (including copy-protected software), saving, reading and writing files from within programs, autobooting (C-128 in 128 mode), scratching, validating, and formatting (1541 drives). JiffyDOS/128 speeds up disk operations in both 64 and 128 modes and is able to speed up the already-quick 128-mode operation of 1571 and 1581 drives.

Works within all types of software

Because of its ROM-based design, JiffyDOS is able to work from within all types of software to increase disk-access speed when you need it the most. Wordprocessors, databases, spreadsheets, programming languages, MIDI software and games all benefit from the built-in speed provided by JiffyDOS. Since JiffyDOS requires no extra RAM in your computer or disk drive and does not alter vectors, it can speed up the operation of all software that relies on the disk-access routines built into the Kernal ROM.

Speeds up access of SEQ, REL, & USR files

Another important feature of JiffyDOS is its ability to speed up the access of all types of files. Program (PRG), Sequential (SEQ), Relative (REL) and User (USR) files can all be accessed faster on JiffyDOS systems. This makes JiffyDOS effective with software that uses these file types, and provides an advantage over cartridge speedup products which improve performance only with PRG files.

Speed comparisons

The following tables illustrate the speed increases that can be obtained with JiffyDOS. Please note that the times shown are rounded off to the nearest second, and do not take into account the disk spin-up delay (approx. 1/2 second) and the time required for directory searching (which varies in relation to the size of the particular directory). Other factors may also influence the results that you obtain on your system. Refer to Section 3 for more information on these factors and for ways to obtain maximum performance when using JiffyDOS.

C-64, SX-64, C-128 in 64 Mode						
	1541		1571		1581	
	stock	w/JD	stock	w/JD	stock	w/JD
LOAD 202 Block PRG File	124	12	124	9	102	8
SAVE 100 Block PRG File	75	24	75	20	40	15
Read 125 Block SEQ or USR File	84	15	84	13	63	9
Write 100 Block SEQ or USR File	81	27	81	24	44	17
Read 64 154-Byte REL Records	40	14	40	14	37	10
Write 1 154-Byte REL Record	.350	.125	.350	.120	.325	.110
Transfer 16K via Command Channel	47	9	47	9	47	9

C-128 in 128 Mode						
	1541		1571		1581	
	stock	w/JD	stock	w/JD	stock	w/JD
LOAD 202 Block PRG File	124	12	14	9	12	8
SAVE 100 Block PRG File	75	24	48	25	26	14
Read 125 Block SEQ or USR File	84	15	31	12	20	10
Write 100 Block SEQ or USR File	81	27	48	33	20	11
Read 64 154-Byte REL Records	40	14	21	14	17	10
Autoboot 202-Block Program	125	13	54	10	13	9
Transfer 16K via Command Channel	47	10	10	6	10	6

Compatibility

Works with virtually all software

We designed JiffyDOS to be fast.-.but not at the expense of compatibility. As a result, JiffyDOS will load and operate with virtually all software of every type (including copy-protected commercial programs). This includes programs that cannot be loaded by other speedup products such as cartridges, software-based "turbo" loaders, and other hardware-based systems. In addition, JiffyDOS is compatible with programs that utilize their own fast-access routines (such as *GEOS*) and will work with the non-standard file formats created by programs such as the *VORPAL* utility kit.

RAMDOS compatibility

JiffyDOS commands are compatible with Commodore's RAMDOS for the 1700, 1750, and 1764 RAM expansion units (REU's), as well as being compatible with the RAM operating system used by CMD in the RAMLink RAM expansion interface.

Compatible with all hardware

Because it does not use any ports, JiffyDOS can work in conjunction with all hardware devices available for C-64's and C-128's, including modems, RAM expansions, MIDI interfaces, hard disk drives, etc. JiffyDOS systems are also compatible with all serial bus devices (non-JiffyDOS disk drives, printers, printer interfaces, etc.). JiffyDOS can be installed on disk drives regardless of device number, and devices numbers can be changed on JiffyDOS drives via software or hardware with no problems. In addition, JiffyDOS-equipped disk drives can be used with stock C-64 and C-128 computers, if necessary.

Uses stock disk and file formats

All files written under JiffyDOS are identical to standard Commodore files. Disks formatted on JiffyDOS systems are identical to those formatted on stock systems. This means that you will have no problems using the disks, programs and files you create with JiffyDOS on stock systems (and vice-versa).

Can be completely switched out

In the event that a program will not load or operate properly with JiffyDOS (this should be a rare occurrence - we know of only a few heavily copy-protected games that will not load), you can switch your system back to a completely stock configuration with the flip of a switch. As an added advantage, you can use the switching system to switch JiffyDOS in or out *with power on.*

Available for all 64's, 128's and virtually all drives

JiffyDOS systems are available for the following computers and disk drives:

C-64, 64"C", SX-64, C-128, C-128D

1541, 1541"C", 1541-II, 1571, 1581
FSD-1, FSD-2, Excelerator+, Excel 2001, OC-118
MSD-1, MSD-2
Enhancer 2000
BCD/5.25, BCD/128
RF501C, RF512C, FD-168, SW71
Indus GT
CSD-1

JiffyDOS can be ordered for any combination of the above computers and disk drives. Additional drive ROMs can be ordered if you wish to speed up second, third or fourth drives. JiffyDOS allows the use of multiple dissimilar drives (i.e. 1541, 1571, 1581) whether or not they are equipped with JiffyDOS ROMs. JiffyDOS-equipped disk drives can be used interchangeably on different JiffyDOS-equipped computers (for example, a C-64 and C-128), or with stock computers. Contact Creative Micro Designs if you are interested in expanding your JiffyDOS system.

Compatibility Guarantee

Because of our confidence in the compatibility of JiffyDOS, we back our product with a 30-day, Money-Back Compatibility Guarantee. The JiffyDOS guarantee is simple: If you are dissatisfied because JiffyDOS is not compatible with any of the hardware or software that you own, simply return the unit unmodified and in good condition within 30 days of purchase for a complete refund. This offer is only valid with units purchased directly from CMD. See the back of this manual for a complete description of the JiffyDOS Guarantee.

SECTION 3
USING JIFFYDOS

ROM Switching

JiffyDOS enables your computer and disk drive(s) to be switched back to stock mode, if necessary. You will probably be able to have JiffyDOS selected all of the time. However, in rare cases, your system may have to be switched back to stock mode to allow a program to load or operate properly.

C-64, SX-64, and C-128

The normal procedure for switching Kernal selections on the C-64, SX-64, and C-128 is to first turn your computer OFF, flip the selector switch to the desired position and then power the computer back ON. After your computer is powered back on, the sign-on screen will indicate which Kernal has been selected. If the JiffyDOS Kernal is selected, the sign-on screen will read:

```
JIFFYDOS  V6.01  (C)1989  CMD
```

This may differ slightly if your version of JiffyDOS is not version 6.01. If the stock Kernal routines have been selected, the normal BASIC sign-on screen will be displayed.

1541 and compatibles

The normal procedure for switching JiffyDOS in or out on 1541 and compatible drives is to power the drive OFF, set the selector switch to the desired position and then power the drive back ON. (Note: The SX-64 does not have a separate drive selector switch.) Reading the disk drive error channel immediately after power-up will indicate which ROM selection has been made. If JiffyDOS has been selected, the message is:

```
73,JIFFYDOS  5.0  1541,00,00
```

(Note: The JiffyDOS version 6 drive ROMs have not been changed since version 5, therefore the actual version number displayed by the drive ROM is version 5). If the stock ROM routines have been selected, the message is:

```
73,CBM  DOS  V2.6  1541,00,00
```

1571 and 1581

On 1571 and 1581 drives equipped with JiffyDOS, a software switching scheme is used to select between JiffyDOS and the stock DOS. With

JiffyDOS installed, the drives sense whether the computer they are connected to is in stock or JiffyDOS mode and subsequently select the corresponding DOS routines automatically. No manual switching is required.

Switching ROMs with power on

JiffyDOS has been designed to allow ROM switching while your system is powered on. This is especially useful in cases where a heavily copy-protected program will not load with JiffyDOS selected, but will perform high-speed drive accesses properly if JiffyDOS is switched in once the program is up and running.

Precautions

The only precaution necessary for switching ROM selections on your computer or disk drive with power on is to be sure that no disk accesses are taking place at the time (switching while a disk drive is being accessed will cause the system to hang up). Take note, however, that switching Kernal ROM selections on your computer while running a program may not be 100% reliable - that is, the program running at the time may crash when the switch is toggled or may hang up when a device access is attempted (some programs will respond better than others).

Switching to the Stock Kernal while in BASIC

To switch from the JiffyDOS Kernal to the stock Kernal while your computer is in BASIC direct mode, first disable the JiffyDOS commands by using the *@Q* command and then flip the Kernal Selector Switch to the stock position.

Switching to the JiffyDOS Kernal while in BASIC

To switch from the stock Kernal to the JiffyDOS Kernal while your computer is in BASIC direct mode, first flip the Kernal Selector Switch to the JiffyDOS position and then type in one of the following commands:

`SYS 58551` (64 mode)

`SYS 65137` (128 mode)

Using a Tape Drive with JiffyDOS

It is not possible to use a tape drive (Commodore DATASETTE, etc.) while the JiffyDOS Kernal is selected. If tape access is attempted, an ILLEGAL DEVICE NUMBER ERROR will occur.

To use a tape drive with JiffyDOS, select the stock Commodore Kernal ROM routines first by using the Kernal Selector Switch. See "ROM Switching" earlier in this section for instructions.

Function Key Definitions

JiffyDOS offers the convenience of function keys defined with JiffyDOS Wedge commands and BASIC keywords. The function key definitions are active only in BASIC direct mode and are automatically disabled when a BASIC or ML program is run, in order to avoid conflict with any program-defined function key assignments. The JiffyDOS function key definitions are:

f1	=	@$:* <RETURN>	Display the directory
f3	=	/	Load a BASIC program
f5	=	↑	Load and run a BASIC program
f7	=	%	Load an ML program
f2	=	@D	List a BASIC program from disk
f4	=	@T	List an ASCII (text) file from disk
f6	=	←	Save a BASIC program
f8	=	@ "S:	Scratch a file

Using the function keys with the directory listing

The JiffyDOS function key definitions have been designed to work along with the filenames in the directory listing. Once the directory has been listed, the cursor can be moved to the line of the desired filename, the appropriate function key can be pressed, and then RETURN can be pressed when it is OK to proceed with the command.

Using the JiffyDOS function keys with the directory listing eliminates the possibility of filename misspellings. And, there is no need to enter a colon (:) after the filename or erase the filetype characters manually in order to avoid a syntax error. After the function key has been pressed, the filename can be altered if desired.

Disabling the function keys

The JiffyDOS *@F* command may be used to disable the function key definitions in 64 mode. In 128 mode this command will switch the function keys from the JiffyDOS definitions to the standard 128 definitions. Refer to Section 4, "The JiffyDOS Commands", for a complete description of the @F command.

Re-enabling the JiffyDOS function keys

The following commands are used to re-enable the standard JiffyDOS function key definitions. For more information see Section 4 of this manual.

```
SYS 58551                                   (64 mode)
SYS 65137                                  (128 mode)
```

Reprogrammable function keys (64 mode)

The function keys (C-64 or C-128 in 64 mode) can be redefined by using a BASIC program. The following program redefines the keys with the strings assigned to variables F1$ through F8$ (change these strings to the new definitions you want to assign). Please note that the keys must be assigned in the order shown in line 55 (f1, f3, f5, f7, f2, f4, f6, f8) and each definition string must end with a CHR$(0).

```
15  F1$="@$:*"+CHR$(13)+CHR$(0)
20  F2$="@D"+CHR$(0)
25  F3$="/"+CHR$(0)
30  F4$="@T"+CHR$(0)
35  F5$="↑ "+CHR$(0)
40  F6$="←"+CHR$(0)
45  F7$="%"+CHR$(0)
50  F8$="@  "+CHR$(34)+"S:"+CHR$(0)
55  F$=F1$+F3$+F5$+F7$+F2$+F4$+F6$+F8$
60  BUF=820
65  FOR I=1 TO LEN(F$)
70  POKE(BUF+I-1),ASC(MID$(F$,I,1)):NEXT I
75  POKE 176,BUF-(256*(INT(BUF/256)))
80  POKE 177,INT(BUF/256):POKE 155,0
```

The variable "BUF" points to the RAM area where the new definitions will be stored (Address 820 is the Tape Buffer). This can be changed to point to any safe RAM area except for the areas under the BASIC and Kernal ROMs.

Listing Freeze

JiffyDOS features an enhanced listing freeze method that differs from V5.0. The listing freeze is especially helpful when you are scanning a long BASIC program or a listing produced by the @$ (directory), @D (list BASIC program), or @T (list ASCII file) commands. In addition, the listing freeze will work from within many commercial programs.

Scanning a listing

You can easily scan a listing by using the <CONTROL> key. Holding down <CONTROL> will stop the listing from scrolling off the screen. When you want the listing to start scrolling again, release the <CONTROL> key. While you are holding down the <CONTROL> key, you can also freeze or single-step the listing (see below).

Freezing a listing

To freeze a listing , press <CONTROL>+<S> (Press "S" while holding down the <CONTROL> key). This will stop the listing from scrolling and allow you to take your hands off the keyboard. To restart the listing, press any key except <CONTROL>, <RUN/STOP>, <SHIFT>, or the <COMMODORE> key.

Single-stepping a listing

With JiffyDOS you can "single-step" a listing. Single-stepping enables you to scroll through a listing one line at a time. To single step, first stop the listing by holding down <CONTROL>. Then, *while continually holding down the <CONTROL> key*, alternately press the "S" and "W" keys. Each time you press "W" a new line will appear on the screen. You can restart the scrolling by releasing the <CONTROL> key after you have pressed "W".

Ending a listing

JiffyDOS enables you to end (break off) any JiffyDOS or BASIC listing by pressing and holding <RUN/STOP>. You can press <RUN/STOP> while a listing is scrolling, or while it is frozen after <CONTROL>+<S> has been pressed. Note: Pressing <RUN/STOP> will work well with BASIC and JiffyDOS listings, but will not necessarily break off the listings that occur within commercial programs.

Getting Maximum Performance

As a general rule (with 1541, 1571, and compatible drives only), programs and files saved with JiffyDOS will load faster than programs and files saved on stock systems (or with JiffyDOS switched out). In some cases, re-saved files can be loaded up to 3 times faster. With programs (or files) that already load quickly with the 1571 in 128 mode, re-saving files may be the only way to obtain a discernable speed increase.

Re-saving files under JiffyDOS does not alter the file's format or contents in any way - it merely rearranges the data more efficiently on disk, which allows JiffyDOS to find each block (sector) more quickly. Re-saved files remain compatible with stock Commodore systems.

Re-writing files

To get the maximum possible speed increase when loading files from within other programs (i.e., wordprocessors, MIDI sequencers, etc.), start up the program, load in the desired file, and then re-save it. For example, to increase the load speed of a MIDI sequencer file, load your MIDI sequencing program with JiffyDOS enabled and then load the file you want to speed up into the sequencer. After the file has been loaded, simply save it back to disk. In many cases, this procedure can double the speed at which files can be loaded. Another method is to use the JiffyDOS file copier to re-write files. See the section titled "The JiffyDOS File Copier" for more information.

Changing the Sector Interleave

JiffyDOS also enables you to easily change the sector interleave on 1541 and 1571 drives. This feature makes it possible to increase the disk-access speed of particular programs that JiffyDOS seems to have little effect on. In some cases, changing the interleave may be the only way to increase disk-access performance – especially when a 1571 drive is used with a C-128 in 128 mode. For example, when a standard interleave is used, JiffyDOS does little to speed up *Paperclip III* (1571 in 128 mode). However, if the sector interleave is changed to a value of 7, file-access speed is doubled. See the section titled "Setting the Sector Interleave" for more information.

The JiffyDOS File Copier

JiffyDOS includes a built-in two-drive file copier that makes it easy to backup valuable data files, to copy files between 1541, 1571 and 1581 drives, and to copy files to and from RAM expansion units running under Commodore's RAMDOS. Although the file copier built into JiffyDOS is not the fastest one in existence, it has the following advantages over stand-alone copy utilities:

- The JiffyDOS file copier is built-in, which enables you to copy files without the hassle of loading a stand-alone utility.
- Copies PRG, SEQ, REL and most USR files.
- Saves time and trouble by automatically replacing existing files of the same name on the destination disk. (The file is first scratched, then written. Save-with-Replace is not used).
- Unlike most utilities, the JiffyDOS file copier uses the standard JiffyDOS interleave (or the interleave specified by the @*G* command), which enables you to maximize the performance of the files that you copy.

- Because the JiffyDOS copier does not rely on drive-specific routines, it can also be used to transfer non-copy-protected programs or files between any two Commodore or Commodore-compatible disk drives, including those that are not equipped with JiffyDOS. This makes it easy to move files between 1541, 1571, 1581 and compatible drives.
- The JiffyDOS file copier is compatible with Commodore's RAMDOS, which makes it ideal for transferring files to and from RAM Expansion Units.
- Files can be copied with JiffyDOS without disturbing programs currently in memory.
- The file copier commands can be used within BASIC programs, enabling you to write your own custom copy routines.
- The file copier can be used to change the file type of PRG, SEQ, and USR files.

Re-saving files

As described in the User's Manual, using a file copy utility (such as the JiffyDOS file copier) to re-save files created by the stock DOS is one of the best ways to increase performance when using 1541 and 1571 disk drives. In fact, with programs or files that already load quickly on a 1571 in 128 mode, re-saving may be the only way to obtain a discernable speed increase. The following types of files can benefit from being re-saved (copied) using the JiffyDOS file copier:

- Any file written under the stock Commodore DOS.
- Any file originally written on a 1541 drive now used on a 1571 drive.
- Any file originally written on a 1571 drive now used on a 1541 drive.

File copier commands

The following JiffyDOS commands provide you with the ability to copy files. Although only four commands are involved, they must be used properly in order to produce the desired results. Before copying any files, you should understand the function and application of each command. (For detailed information on each individual command, see the section covering JiffyDOS commands).

`@Xdev#`	Sets the destination drive for copying.
`*"filename" type`	Copies filename to the destination drive.
`<CONTROL>+<A>`	Toggles the copy flag on/off for all files in the directory listing.
`<CONTROL>+<W>`	Toggles the copy flag on/off for a single file in the directory listing.

How to copy files with JiffyDOS

The following procedures describe the steps you will need to follow when copying files with JiffyDOS. Before using the JiffyDOS file copier for the first time, read through the procedures carefully. It is also a good idea to experiment with non-valuable disks until you are sure you can make successful copies.

Copying a single file

If you need to copy only one or two files, or do not want to disturb a BASIC program currently in memory, use the following procedure:

1. Place the source disk in the drive that you want to copy from. Place the destination disk in the drive that you want to copy to. Note: No action is necessary at this point for a source or destination that is an REU.
2. Use the `@X` command to tell JiffyDOS which drive is the destination drive. For example, enter `@X9` if the destination drive is to be device 9.
3. Use the `@#` or `<CONTROL>+<D>` commands to set the default device to the source drive. For example, enter `@#8` if the source drive is to be device 8.
4. List the directory from the source drive. You can enter `@$` or press f1. Stop the listing (press `RUN/STOP`) when you see the file(s) that you want to copy appear on the screen.
5. Cursor up to the file that you want to copy. Keep the cursor on the left side of the screen. Press the asterisk (*) key (the asterisk should appear in the leftmost column on the same line as the file you want to copy).
6. Press `<RETURN>`. The file will be copied from the source drive to the destination drive.
7. Repeat Steps 4-6 for any additional files that you want to copy.

Copying multiple files

If you need to copy more than a few files, use the following procedure:

1. Follow Steps 1-3 above under "Copying a single file".
2. Load the directory from the source drive by entering `/$`. Note: This will overwrite any BASIC program currently in memory.

   IMPORTANT: Make sure you load the directory with the `/$` command. DO NOT use the `@$` command.

   List the directory (type `LIST`). If the directory listing is longer than one screen, you can use the JiffyDOS "Listing Freeze" feature to easily locate the desired file(s). Next, use the *<CONTROL>+<A>* and/or *<CONTROL>+<W>* commands to select the files that you want to copy (see below). The asterisk (*) indicates that the file will be copied.

   Pressing `<CONTROL>+<A>` will toggle the copy flag on/off for all files in the listing, and then re-display the entire list.

   Pressing `<CONTROL>+<W>` will toggle the copy flag on/off for a single file. *The cursor must be on the same line as the file that you wish to toggle, and must be to the far left of the screen.*

   IMPORTANT: DO NOT press `<RETURN>` when the cursor is on the same line as one of the filenames. This will result in a corrupted file list, and will require that you reload the directory from disk.

3. Enter `RUN`. The file copier will start working. When all files have been copied, the cursor will return to the screen.

Using the file copier commands in BASIC programs

The following two examples illustrate how to use the file copier commands within a BASIC program.

Example 1:

```
100  @#8                        Set the source drive to device 8
110  @X10                       Set the destination to device 10
120  *"JIFFYMON"PRG             Copy PRG file "JIFFYMON"
130  *"TAX DATA"SEQ             and SEQ file "TAX DATA"
140  END                        from drive 8 to drive 10
```

Example 2:

```
100  INPUT"SOURCE DRIVE";S      Input the source drive
110  INPUT"DESTINATION";D       Input the destination drive
120  @#S : @XD                  Set the source and destination
140  INPUT"FILENAME";F$         Input the filename
150  INPUT"TYPE (P/S/R/U)";T$   Input the filetype
160  IF T$="P" THEN *F$ PRG     If file is PRG, copy it as such
170  IF T$="S" THEN *F$ SEQ     If file is SEQ, copy it as such
180  IF T$="R" THEN *F$ REL     If file is REL, copy it as such
190  IF T$="U" THEN *F$ USR     If file is USR, copy it as such
```

Changing the filetype of PRG, SEQ and USR files

The JiffyDOS file copier also enables you to change the filetype of PRG, SEQ and USR files. (Note: You cannot change a PRG, SEQ or USR file into a REL file, and you cannot change a REL file into any other type of file.) Use the following procedure to change the filetype of a PRG, SEQ or USR file:

1. Follow Steps 1-4 under "Copying a single file".

2. Cursor up to the file that you wish to change. Make sure the cursor is on the left-hand edge of the screen. Press the asterisk (*) key. DO NOT press <RETURN> yet.
3. Stay on the same line and cursor over to the filetype (PRG, SEQ, USR). Type the new filetype that you want over the one displayed on the screen, and then press <RETURN>. The file will be copied to the destination drive and will be assigned the new filetype.

Changing the filetype can also be done by using the JiffyDOS commands within a BASIC program. See below:

```
100 INPUT"SOURCE DRIVE";S          Input the source drive
110 INPUT"DESTINATION";D           Input the destination drive
120 @#S : @XD                      Set the source and destination
140 INPUT"FILE TO CHANGE";F$       Input the filename
150 INPUT"NEW TYPE (P/S/U)";T$     Input the new filetype
160 IF T$="P" THEN *F$ PRG         Make it a PRG file
170 IF T$="S" THEN *F$ SEQ         Make it a SEQ file
180 IF T$="U" THEN *F$ USR         Make it a USR file
```

Additional notes about the JiffyDOS file copier

- Whenever you copy files using the method shown above under "Copying multiple files" *make sure* that you load the directory by using the */$* command. DO NOT use the *@$* command. The *<CONTROL>+<A>* and *<CONTROL>+<W>* commands will not work properly if the directory has been loaded using *@$*.
- JiffyDOS cannot copy non-standard files such as 1581 "CBM" partition files and the special USR files created by GEOS.
- Changing a PRG file to a SEQ or USR file will not remove the first two bytes in the file (the load address). Likewise, changing a SEQ or USR file to a PRG file will not add two load address bytes to the beginning of the file.
- When JiffyDOS starts to copy a REL file, there may be a significant delay (up to about 40 sec.) while JiffyDOS interrogates the source drive to determine the record size of the particular REL file. While this operation is being carried out, the destination drive will sit inactive. Do not assume that this period of inactivity means the system has "hung up".
- After a REL file is copied, the error light will always be flashing on the source drive. This does not indicate that an error has occurred during copying.

Setting the Sector Interleave

As mentioned earlier, JiffyDOS enables you to optimize performance with some software through changing the sector interleave. The @G command is used to ease selection of the required interleave. For specific information on the @G command, see the section covering JiffyDOS commands.

Understanding sector interleave

Each time the DOS writes a file to disk, it uses a sector interleave value to lay out the physical distance (number of sectors skipped) between consecutive sectors (blocks) of a file. After a file is written, its interleave can greatly affect the speed at which the file can be read. If the space between consecutive sectors (the interleave) is too small, the DOS cannot read the next block in the file without having to wait for the disk to spin one additional revolution (one disk revolution takes 0.2 seconds). If the interleave is larger than it has to be, the DOS also spends unnecessary idle time waiting for the next sector to reach the read/write head.

Because JiffyDOS can access and transfer data faster than the stock DOS, it uses special interleave values designed to reduce access delays to a minimum. For PRG files, JiffyDOS uses an interleave that provides the fastest possible access when the Kernal Load routine is used. For SEQ, REL and USR files, JiffyDOS uses a compromise interleave value designed to perform well in most cases. On the other hand, the stock Commodore DOS uses the same interleave value for all file types. Both JiffyDOS and stock interleave values for 1541 and 1571 drives are listed in the table below:

JiffyDOS and Stock interleave values

	JiffyDOS Interleave		Stock Interleave
Drive	PRG	SEQ, REL & USR	PRG, SEQ, REL & USR
1541	6	10-12*	10
1571	4	8-10*	6

* Depends upon track zone

The standard JiffyDOS interleave values work well in most cases. However, because of the many different ways that programs load and access data, there are times when using a different interleave value is the only way to provide maximum performance.

When to adjust the interleave

In general, if your JiffyDOS system is already performing close to its maximum capability (within a few seconds of the times shown in the performance charts in Section 2), then changing the interleave will do little to improve performance. However, if you notice that a particular program seems to load or access data two to three times slower than is possible with JiffyDOS, then changing the interleave and resaving the program and/or data files could provide the speed you are looking for.

Files that can benefit from a new interleave

1. Any program (PRG-type) that is not loaded by the Kernal Load routine. Instead of using the Kernal Load routine, many commercial programs incorporate a loader that reads in sections of the program byte-by-byte.
2. Any PRG data file not accessed by the Kernal Load routine. Note: most programs that use PRG data files *do not* use the Kernal Load routine to access the data in the PRG file.
3. Any SEQ, REL, or USR file that is read by a slower-than-normal access routine. Unfortunately, many programmers do not take the time to optimize their file-access code (maybe because the stock Commodore DOS is so slow), or use a compiled language that is inefficient to begin with (like compiled BASIC). As a result, some commercial programs suffer from lackluster file-access performance, even after JiffyDOS is installed.

Determining the optimum interleave

To determine the optimum interleave for a particular program or data file, follow the procedure outlined below:

1. First, be sure that you have read the information above so that you understand which programs and files can benefit from an altered interleave.
2. You will need two disk drives so that the necessary files can be copied from the original disk to a new disk. The drive you will copy from is the *source drive*, the drive you will copy to is the *destination drive.*
3. Determine a starting interleave value. On 1541 drives, use 6. On 1571 drives, use 4.
4. Make a copy of the original disk. If it is a program disk, the copy should be a nibble backup, fast copy or parameter copy that is an *exact duplicate of the original with the same sector interleave.* If it is a data disk, it should contain the necessary system files, print drivers, etc. (if any), *but no actual data files.*
5. Insert the copy of the original disk into the destination drive.
6. Insert the original disk into the source drive.
7. Set the default to the destination drive. Use the `@#` or *<CONTROL>+<D>* commands. For example, enter `@#9` if the destination drive is device #9.
8. Enter the desired interleave value by using the `@G` command. For example, enter `@G5` to set the interleave to 5.
9. Set the default to the source drive. Use the `@#` or *<CONTROL>+<D>* commands. For example, enter `@#8` if the source drive is device #8.
10. Load the directory from the source drive by entering `/$`. List the directory and then use the *<CONTROL>+<A>* and/or *<CONTROL>+<W>* commands to select the program(s) or data file(s) that will be getting the new interleave (see the section covering the JiffyDOS file copier for more information on the *<CONTROL>+<A>* and *<CONTROL>+<W>* commands).

    > IMPORTANT: Make sure you load the directory with the `/$` command. DO NOT use the `@$` command.

11. Tell JiffyDOS which drive is the destination drive by using the `@X` command. For example, enter `@X9` if the destination drive is device #9.
12. Copy the files from the source drive to the destination drive by entering `RUN`.
13. Test the destination disk to see if the new interleave has helped performance. If the disk is a program disk, load the program. If it is a data disk, load and run the program that will access the data, and then load the data file(s). Time the disk accesses and see if the new interleave has helped. Keep a record of all results.
14. Return to Step 5 and increase the interleave value by one. Continue this procedure until you have tried all interleave values up to and including 16.
15. Compare the timing results you recorded in Step 13 to determine the interleave value that provides the best performance.
16. Re-copy the program(s) or data file(s) using the optimum interleave value. Follow Steps 5 through 12.
17. Before continuing, make sure the standard interleave is reinstated on all drives. The safest way to do this is to completely reset your system (C64 users should power down, then up; C-128 users can press the reset button).
18. Carefully read the following procedure concerning data files that require an altered interleave.

Data files which require an altered interleave

Each time you are planning to work with data files that require an altered interleave, follow the procedure below:

1. Before loading and running the program that will access or create the data file(s), set the default to the drive that will contain the data disk.

Use the *@#* or *<CONTROL>+<D>* commands. For example, enter @#9 if the data drive is device #9.

2. Set the interleave to the optimum value for the particular program. For example, enter @G9 if the optimum value is 9. *Remember, do this for 1541 and 1571 drives only – altering the interleave on 1581 drives will have no effect on performance.*
3. If more than one drive will be accessing the data, Repeat Steps 1 and 2 for each of the additional data drives.
4. Reset the default to the drive that the program will load from. For example, enter @#8 if the program will be loaded from device #8.
5. Load and run the program that will access the data.
6. Read, write and create data files in the normal fashion from within the program.
7. After you have finished working with the program, make sure that the standard interleave is reinstated on all drives (refer to Step 17 in the previous procedure).

Important points to remember about the interleave

- Adjusting the interleave is only effective on 1541 and 1571 drives – it will not increase performance on the 1581. Adjusting the interleave will also be effective on drives that are closely compatible with the 1541 and 1571 (for example FSD, Bluechip, Amtech, Swan, Excel, Enhancer and Cardco drives). Adjusting the interleave with drives that are not as closely compatible (such as MSD and Indus drives), should be approached with caution and may in fact disturb the DOS in these drives to the point where disks and data could be corrupted.
- Files that already perform up to the maximum speed provided by JiffyDOS *will not* benefit from being re-written using a new interleave value. In fact, performance with these files will most likely suffer if a different interleave value is used. However, if a particular program loads or accesses data two to three times slower than is possible with JiffyDOS (refer to the times shown on pages 5 and 6 of the User's Manual), then changing the interleave could provide the increased speed you are looking for.
- The correct interleave for a particular program or file depends upon numerous factors and must be chosen carefully. In most cases, a trial-and-error approach must be employed to find the optimum value.
- Adjusting the interleave for a particular program or file *cannot* make up for grossly inefficient programming practices. In other words, if the software you are using is just plain slow, there just isn't much that can be done to speed up disk access. Even machine language programs can be written poorly enough to fall into this category.
- Adjusting the interleave may not do much for slow-running languages like BASIC. A good example is a loop that reads a file one byte at a time using the GET# statement. Because the BASIC interpreter takes so long to execute each instruction, far too much time passes between the actual reading of each byte. Complied BASIC is better, but not as much as you would expect. While adjusting the interleave may help speed up file access from within BASIC, it will most likely not provide the maximum speed that JiffyDOS is capable of.
- Some programs utilize custom file access routines that completely bypass the Kernal ROM. GEOS and Flight Simulator II are two examples. Neither JiffyDOS nor an altered interleave can help the performance of such programs.
- Files saved under JiffyDOS using a standard or altered interleave will most likely load *slower* on stock systems.
- Be careful if you have both 1541 and 1571 drives. The optimum interleave for a 1571 drive may cause severely decreased performance on a 1541 drive (1571's can read data much faster than 1541's). If you have disks that will be used on *both* 1541 and 1571 drives, then use the optimum interleave for the slower 1541 drive.

If you're not getting top Performance

When using certain programs, you may feel that JiffyDOS is not increasing performance as much as it should be. In these cases, the problem is most likely related to the particular software in use. There are also some considerations to note when using 1571 drives.

Programs with built-in fast loaders

Some programs utilize their own built-in fast loaders. Some examples are *GEOS*, the *Mastertracks* MIDI sequencer, *Fast Hack'Em*, and disks created by certain types of "freezer" cartridges. These programs contain their own DOS which bypasses the disk-access routines in the Kernal and DOS ROMs. Since JiffyDOS resides in these ROMs, any program which bypasses the disk-access routines renders JiffyDOS ineffective. As a result, JiffyDOS can provide little, if any, performance gains with such programs.

In these cases, better performance may be achieved only by alterering the software so that it uses the disk-access routines provided in the Kernal ROM, or to alter the interleave as outlined previously. Altering the software itself can be a difficult job, even if you have the programming know-how. Another option is to contact the software manufacturer to see if any versions of the program exist that do not incorporate the built-in fastloader, or if there is an easy way to disable it. If you own the *Mastertracks* MIDI sequencer, contact Creative Micro Designs to obtain a free conversion utility which disables the built-in fastloader and enables JiffyDOS to take charge of disk accesses.

BASIC programs

Programs written in BASIC will produce mixed results with JiffyDOS because of the slowness of the BASIC interpreter. The interpreter spends most of its time figuring out what each instruction is and what it should do with it - making disk access time insignificant when compared to this software overhead. As a result, the speed increases you notice when using JiffyDOS will vary according to the way the BASIC program was written.

JiffyDOS performs best when loading another program from within BASIC (i.e. `LOAD"TEST.ML",8,1`). Because the entire file is accessed by a single instruction (the `LOAD` command), JiffyDOS can perform at 100% efficiency. On the other hand, reading a file byte-by-byte by means of the `GET#` instruction is the least efficient method of accessing a file. Because of the amount of software overhead involved in interpreting the `GET#` instruction and the other instructions in a typical `GET` loop (and because of the disk-access characteristics of `GET#`), you will probably notice no better than a 2x speed increase with JiffyDOS. Whenever possible, use the `INPUT#` instruction to read files. `INPUT#` will perform much better than `GET#` - especially if you read in a long string each time `INPUT#` is executed (the longer the string, the better the performance).

Compiled BASIC (i.e. programs compiled using *Basic-64* or *Blitz!*) will perform better with JiffyDOS than uncompiled BASIC (the elimination of interpreter overhead is the main reason). However, the degree of speed increase will still depend upon how the original program was written. See the above paragraph for a discussion of the `GET#` and `INPUT#` instructions.

Machine-language programs

JiffyDOS performs best when disk accesses are handled by efficient, well-written machine-language routines (JiffyDOS performance specifications are based on results obtained using ML routines). However, not all machine-language routines are efficiently written - which means that the speed increases you experience using JiffyDOS can vary greatly from program-to-program.

Fragmented files

"Fragmented" files have their data scattered across a disk in a non-orderly fashion. This usually occurs on disks that have had a number of files "scratched", or erased. When a file is saved to such a disk, the DOS first fills up the empty areas left by the scratched files. If the file being saved is long, it may be written to many of these randomly-located areas. When it comes time to read the file, the DOS is forced to search across a wide area of the disk in order to retrieve all the data, which can add significantly to the amount of time it takes to read the file.

To eliminate file fragmentation, copy the files from the fragmented disk to an empty disk. You can transfer the files using the JiffyDOS file copier or a file-copy program. See "Getting Maximum Performance" earlier in this section for more information.

Sprites

"Sprites" are graphic display items that can be moved around quickly and easily on screen. Although sprites are used primarily in games (Pac-Man is a sprite), they are also found in other types of programs (the *GEOS* pointer is also a sprite). While it seems unlikely that a screen graphic could affect disk-access performance, sprites present a real problem for serial-bus communications routines. Sprites are hardware-generated by the VIC-II chip, and displaying them requires the VIC-II to "steal" cycles from the 6510/8510 microprocessor. Cycle stealing makes it impossible to use high-speed software timing loops to transfer data over the serial bus (JiffyDOS uses timing loops). Even the stock Commodore C-64 DOS is prone to hang up when sprites are displayed during serial I/O.

The solution to the problem is to disable sprites (shut them off) whenever serial bus communications are taking place. This is the approach used by *GEOS* (you'll notice the pointer disappear during disk accesses). Unfortunately, few programs imitate *GEOS* in this regard. Because of such programs, JiffyDOS is forced to disable sprites on its own (Commodore also does this in their 128-mode DOS). When JiffyDOS has to disable sprites for each byte read or written over the serial bus, data transfer slows down to the turtle-like speed of stock systems (this slowdown also occurs, by the way, with Commodore's 128-mode DOS).

Unfortunately, there is not much you can do if sprites are causing JiffyDOS to slow down (unless, of course, you have written the offending program yourself and can change it).

1571 drives

If you are using a JiffyDOS-equipped 1571 drive with a C-64, SX-64, or a C-128 in 64 mode, you will obtain maximum performance *only if the 1571 is in 1541 mode*. With JiffyDOS installed, your 1571 can access (and format) both sides of a disk in 1541 mode - making it unnecessary to switch to 1571 mode to benefit from the increased dual-side storage. This means:

1. You should not use the "U0>M1" command to switch into 1571 mode when using a C-64, SX-64 or C-128 in 64 mode (this will reduce performance). C-64/SX-64 owners: Note that the 1571 is automatically in 1541 mode upon power-up.
2. When switching from 128 mode to 64 mode on a C-128, *use the reset switch and hold down the Commodore key*. Do not use the "GO64" command. Using GO64 will leave the 1571 in 1571 mode, resulting in reduced performance in 64 mode.

Note: If you must use the GO64 command, sending the `"U0>M0"` command to the 1571 disk drive will place it in 1541 mode, ensuring best performance.

If a Program won't Load or Operate

Although we have made every effort to ensure compatibility with as much software as possible, you may occasionally run across a program that will not load or operate properly with JiffyDOS. Loading problems are almost always caused by extravagant copy-protection schemes that rely on stock head step rates, serial bus timing, and particular ROM versions (these copy protection schemes are the same ones that cause loading problems on 1571 and 1541C drives). Unfortunately, it would be necessary to reduce the performance of JiffyDOS in order to provide compatibility with these programs.

Another very rare type of program will load OK under JiffyDOS but will not operate properly once loaded. This type of problem is caused almost exclusively by bad programming practices (i.e. the indiscriminate use of ROM routines without regard to normal entry points, jump tables, etc.). This misuse of ROM routines has become so widespread that Commodore is now very reluctant to change (even fix or improve) their own ROMs for fear of introducing compatibility problems. Since JiffyDOS relies on carefully selected ROM changes to enhance performance, undoing any of these alterations to provide compatibility with just one program would unfortunately reduce performance, features, or both.

What to do if a program won't load

JiffyDOS includes a switch which will return your system to a 100% stock configuration to ensure compatibility with the few programs that do present problems. Refer to "ROM Switching" earlier in this section for information on how to switch JiffyDOS out in order to provide compatibility with problem programs.

Using JiffyDOS with RAM Units

The JiffyDOS commands support Commodore's RAMDOS for the 1700, 1750 and 1764 RAM Expansion Units in both 64 and 128 modes. Please read the following information carefully before using an REU with JiffyDOS.

Recommended RAMDOS Versions

The following versions of Commodore's RAMDOS are required for proper operation with JiffyDOS:

64 mode:	RAMDOS V4.2 (or higher)
128 mode:	RAMDOS V4.3 (or higher)

Using earlier RAMDOS versions will subject you to the bugs that they contain and to incompatibilities with certain JiffyDOS commands. If you do not have the correct version of RAMDOS, it can be obtained from Q-Link, a User's Group, bulletin board or friend. Note: All versions of Commodore's RAMDOS are in the public domain.

JiffyDOS commands that conflict with RAMDOS

The following JiffyDOS commands are incompatible with Commodore's RAMDOS and should not be used:

`@L:`*`filename`*	(Lock a file)
`£`*`filename`*	(Load and run a machine-language program)

Starting up RAMDOS on your JiffyDOS system

To use RAMDOS along with JiffyDOS, do the following:

1. Power up or reset your system with JiffyDOS active (the power-on screen message will indicate if JiffyDOS is switched in).
2. Start up RAMDOS as you would normally. DO NOT load the DOS Wedge supplied on your RAMDOS diskette – it will disable the JiffyDOS commands.
3. Use the JiffyDOS commands as you would normally to access the REU. Remember to avoid the JiffyDOS commands that are not compatible with RAMDOS (see above).

The limitations of RAMDOS

Commodore's RAMDOS relies on software vectors to operate. Since many commercial programs reset these vectors, they effectively disable RAMDOS and render the REU useless. Because of the design of RAMDOS and the REU, JiffyDOS cannot overcome this limitation and provide increased commercial compatibility with RAMDOS. So, although JiffyDOS will make using your REU easier, it cannot by itself extend its usefulness with commercial software. Future CMD products are planned which will overcome these problems and make your REU useable with nearly all software.

Using JiffyDOS Commands with BASIC

Whenever JiffyDOS executes a command, it opens up a 255-byte buffer at the top of BASIC. If you have a BASIC program in memory that takes up all (or almost all) of the available BASIC memory, an OUT OF MEMORY error may occur when the buffer is opened. If this problem occurs with a particular program you are working on or using, you can do two things to overcome the memory shortage: 1) If you are in direct mode, enter CLR. In most cases, this will free up enough memory for the buffer. 2) Shorten the offending program, or cut down on its use of arrays and variables.

SECTION 4
THE JIFFYDOS COMMANDS

JiffyDOS offers the convenience of a complete, built-in implementation of the Commodore DOS 5.1 Wedge command set. Also included are a set of additional commands that provide functions that are not accessible on stock systems or through the standard DOS Wedge. All JiffyDOS commands can be entered in BASIC direct mode and/or used from within BASIC programs.

Command Descriptions

This section gives a complete description of each JiffyDOS command. The commands are listed by their function, along with the syntax of each form of the command. Examples are provided after the command descriptions to illustrate the use of each command in its basic and optional forms. If no example is given, the only form of the command is as listed in the syntax line. Here is a brief description:

... Indicates a command in which the last parameter given may be repeated. NOTE: The maximum length of a command string is 41 characters.

[ ] Used to enclose information which is optional to the command syntax. The brackets themselves are not part of the command.

filename Indicates where a filename should be placed in a command. Other names are used to indicate filenames as well such as *oldfile*, *file1*, and *backup*.

dev# Used to indicate where a device number should be placed in a command. Legal device numbers are usually 4 or 5 for printers, and 8 through 11 for disk drives.

Direct: Shows the syntax of the command when used in direct mode.

Program: Shows the syntax of the command when used in a program. This syntax may usually be used in direct mode as well, and in many cases, must be used in order to take advantage of the default device override feature.

Parameters printed in *italics* are not literal and should be replaced with the proper information when using the command.

Parameters printed in `plain text` are literal and must be included in the command.

A *drive number* may optionally be used with most drive commands. This is useful when using dual drives such as the MSD-2 or Commodore 4040. To indicate a drive number (0 or 1), place the drive number just prior to the colon (:) in the command string. If using a command with quotes, place the device number and colon within the quotes.

Setting the Default Device

Two commands are available for switching the JiffyDOS default device on multiple-drive systems: The standard DOS Wedge command *@#*, and the convenient JiffyDOS *<CONTROL>+<D>* device toggle.

@#

Direct:	@#*dev#*
Program:	same

The *@#* command is used in multiple-drive systems to specify the default disk drive device number for all JiffyDOS commands. When this command is entered, an attempt is made to access the drive with the device number specified within the command. If the access succeeds, the specified drive becomes the new default drive. If the access fails, a `DEVICE NOT PRESENT` error will be displayed, and the default drive will remain unchanged.

`@#9`	Sets the default drive device number to 9 (if device 9 is present).

<CONTROL>+<D>

The *<CONTROL>+<D>* command is used on multiple-drive systems to switch the default disk drive device number for all JiffyDOS commands. Pressing <CONTROL>+<D> (holding down the <CONTROL> key and pressing D at the same time) will switch the default device assignment and display the new device number on the screen. For example, if device 8 is the current default, <CONTROL>+<D> will make device 9 (if present) the default, and display a "9" on the screen. If device 9 is the current default, pressing <CONTROL>+<D> will make device 8 the default, and display an "8" on the screen. <CONTROL>+<D> offers a much more convenient means of changing default devices than the `@#` command. The <CONTROL>+<D> command is only available in direct mode.

Displaying the Directory

Direct:	@$[:*filename*]
Program:	@"$[:*filename*]"[,*dev#*]

JiffyDOS provides a quick, convenient way to display disk directories without overwriting programs stored in your computer's BASIC memory. JiffyDOS directories can be easily printed, suspended or ended at any time.

The *@$* command displays the disk directory. Typing *@$* with no filename displays the entire directory. `@$` followed by a colon and a filename will display the specified file in the directory listing (if it exists). A selective listing can be displayed by using pattern matching or wild cards as part of the filename. The directory can be printed by entering the *@P* command prior to issuing the `@$` command, and after the listing has been completed, output can be restored to the screen by issuing another `@P` command.

Note: A directory listing produced by the `@$` command can be paused or suspended at any time by using the commands described in the section titled "Listing Freeze".

`@$`	Displays the entire directory.
`@$:TEST`	The directory listing will display the file TEST if it exists on disk.
`@$:T*`	All files having a "T" as the first letter in their filename will be displayed in the directory listing.

`@P`
`@$`
`@P`
	Lists the directory to a printer. Output is then restored to the screen.

Reading the Disk Drive Error Channel

Direct:	@["",*dev#*]
Program:	same

JiffyDOS makes it easy to find out what has happened when the error light on your disk drive starts flashing. Instead of having to type in a program (as you must on stock systems), you can enter a single character to display the error messages output by your disk drive.

The `@` command is used to read and display the disk drive error channel. This is useful in determining what type of error has occurred when the red error light on the disk drive is flashing (you will also be pleased to find that issuing the `@` command will also shut off the distracting flash of the error light). If @ is typed when the error light is not flashing, the drive "OK" message will be displayed (OO, OK,OO,OO).

If the @ command is entered when the system (or your disk drive) has just been powered up or reset, the disk drive's DOS type and version number will be displayed.

Loading BASIC Programs

JiffyDOS provides two commands for loading BASIC programs.

Load a BASIC program

Direct: `/filename`

Program: `/"filename"[,dev#]`

The / command provides a shorthand method of loading a BASIC program. Typing `/filename` is identical to entering the BASIC command `LOAD"filename",n` (where n is the default drive device number).

Load and RUN a BASIC program

Direct: `↑filename`

Program: `↑"filename"[,dev#]`

The ↑ command loads and runs a BASIC program. Typing `↑filename` is the same as entering the BASIC commands `LOAD"filename",n` (where n is the default drive device number) and `RUN`.

Saving BASIC Programs

Direct: `←filename`

Program: `←"filename"[,dev#]`

The JiffyDOS ← command saves a BASIC program. Typing `←filename` is equivalent to entering the BASIC command `SAVE"filename",n` (where n is the default drive device number).

Loading Machine-Language Programs

JiffyDOS provides two powerful commands for loading machine-language programs.

Load a machine language program

Direct: `%filename`

Program: `%"filename"[,dev#]`

The % command loads a machine language file without resetting any BASIC pointers. Typing `%filename` is the equivalent of entering the command `LOAD"filename",n,1` (where n is the default drive device number), except that the BASIC program pointers are not reset as a result of the load. This avoids OUT OF MEMORY errors, and also means that the BASIC program pointer is not reset to the beginning of the current program. Thus, this command provides a way to load ML programs from within a BASIC program without resorting to the usual contortions. For example, use a routine similar to the following to load a number of machine language modules:

```
10 %"ML1":%"ML2":%"ML3"
```

Load and execute machine language program

Direct: `£filename`

Program: `£"filename"[,dev#]`

The £ command loads and then runs a machine-language program. Typing `£filename` is a much more convenient alternative to entering `LOAD"filename",n,1` and then doing a `SYS` to start the program. At the beginning of a load, the £ command finds the starting address of the ML file and then begins execution at that address when the program has finished loading. Note: While this command will work properly with most machine language programs, it will not work with programs that have entry points that differ from their load addresses.

Loading and Running the First Program on Disk

`<Shift>+<RUN/STOP>`

The *<Shift>+<RUN/STOP>* key combination can be used to load and run the first program on disk. Using this command is identical to entering the BASIC commands `LOAD":*",8,1` and `RUN`. This provides a quick, convenient way of starting up most commercial software programs. In 64 mode the `<Commodore>` key may be used instead of `<Shift>`.

Verifying Programs

Direct:	`'filename`
Program:	`'"filename"[,dev#]`

The ' (apostrophe) command verifies a file in memory against a file on disk. Using this command provides a shorthand method of entering the BASIC command `VERIFY"filename",n,1` (where n is the default drive device number). This command will work with all machine language files and with all BASIC programs that have been saved under the current BASIC environment (i.e. a BASIC program saved on the C-64 will verify properly on a C-64 but not on a C-128 in 128 Mode).

Listing BASIC Programs from Disk

Direct:	`@D:filename`
Program:	`@D"filename"[,dev#]`

The *@D* (DLIST) command enables a BASIC program to be listed to the screen or to a printer directly from the disk without loading it into memory first. The file listing can be directed to a printer by issuing the `@P` command prior to using this command. After the listing has been completed, output can be restored to the screen by entering the `@P` command once again. For legible results, take care to use `@D` to list only BASIC programs.

Note: A listing produced by the `@D` command can be paused or suspended at any time by using the commands described in the section titled "Listing Freeze".

`@D:GAME`	A listing of the program GAME will be sent from disk to the screen.

`@P`
`@D:LOTTERY`
`@P`
	A listing of the program LOTTERY will be output from disk to a printer (device #4). Output is then restored to the screen.

Listing ASCII Files from Disk

Direct:	`@T:filename`
Program:	`@T"filename"[,dev#]`

The most common use of the *@T* (TYPE) command is to list an ASCII text file (such as a wordprocessor file) to the screen or to a printer. When using `@T`, care should be taken to list ASCII files only - otherwise, the results may be unpredictable (for example, a BASIC program will display garbage if listed to the screen or to a printer via `@T`). The default output device for the `@T` command is the screen. To list a file to the screen, enter `@T:filename`. To print a listing, issue the `@P` command prior to using the `@T` command. When the printout is complete, you can restore output to the screen by entering `@P` once more.

Note: A listing produced by the `@T` command can be paused or suspended at any time by using the commands described in the section titled "Listing Freeze".

`@T:LETTER`	Lists the file LETTER to the screen.

`@P`
`@T:APPOINTMENTS`
`@P`
	Lists the file APPOINTMENTS to a printer. Output is restored to the screen at the completion of the command.

"Un-NEWing" a BASIC Program

Direct:	`@O`

The JiffyDOS *@O* (Old) command can be used to recover a BASIC program that has been accidentally "NEWed." Entering `@O` will also recover a BASIC program lost when the computer is reset. Note that the Un-NEW command is only effective if no new BASIC lines have been entered since the original program was lost.

Initializing the Disk Drive

Direct:	`@I`
Program:	`@"I"[,dev#]`

The *@I* (INITIALIZE) command initializes the disk drive. Initialization causes the drive to read the BAM (block availability map) and ID from a diskette and store this information in its internal memory. Initialization also clears the error channel and turns off the error LED on the drive (if it is flashing). At times (i.e. after a DRIVE NOT READY error), it will be necessary to initialize the disk drive before it can be used to perform any further operations. Remember that the `@I` command clears the error status of the drive, so if you wish to read the drive error channel after an error has occurred (see the `@` command), do so before using this command. Note that it is a good idea to initialize the disk drive every time you insert a diskette into the drive.

Resetting the Disk Drive

Direct:	@UJ
Program:	@"UJ"[,*dev#*]

The *@UJ* command is used to reset the disk drive. Note that @UJ may not work properly with older 1541 drives. For this command to work with older 1541's, the alternate syntax @U: may be required.

Validating Disks

Direct:	@V
Program:	@"V"[,*dev#*]

The *@V* (VALIDATE) command is used to free unused blocks on a diskette. After a diskette has been in use for a while, more blocks may be free than the BAM and directory indicate. Primarily, this happens when unclosed files have been scratched. Using the @V command will free space on a diskette available for use. Note that this command may take some time to complete, depending on the amount and size of the files located on the particular diskette.

Formatting Disks

The *@N* (NEW) command is used to format a diskette. There are three versions of this command to cover long, short, and extended formatting of the diskette.

Note: Using inferior media can cause errors during formatting. JiffyDOS is less forgiving in this respect than the stock DOS, but when a formatting error occurs it should indicate to you that the media may not be reliable.

"Long" NEW

Direct:	@N:*diskname,ID*
Program:	@"N:*diskname,ID*"[,*dev#*]

This version of the @N command is necessary when formatting a diskette for the very first time. *Diskname* is any name you wish to assign to the disk and can be up to 16 characters long (the diskname appears at the top of directory listings). The *ID* can be any 2 characters and is written to the directory along with the diskname and also to all header blocks on the diskette. Remember to include the comma between *diskname* and *ID* when using this form of the command.

"Short" NEW

Direct:	@N:*diskname*
Program:	@"N:*diskname*"[,*dev#*]

This version of the @N command performs a "short" NEW on a diskette that has already been formatted. A short NEW clears the directory and BAM of an already-formatted diskette and is much quicker than completely reformatting.

"Extended" NEW for 1571 from 64 mode

(JiffyDOS-equipped 1571 drives only)

Direct:	@N2:*diskname,ID*
Program:	@"N2:*diskname,ID*"[,*dev#*]

This version of the @N command is used exclusively to format both sides of 1571 disks when the 1571 is in 1541 mode (the stock Commodore DOS allows only one side of a diskette to be formatted in 1541 mode). This command helps take advantage of the double-side 1541-mode operation provided by JiffyDOS. Note that the 1571 is in 1541 mode upon power-up, and will only switch to 1571 mode if used with a C-128 in 128 mode, or if the U0>M1 command is issued. The @N2 command is effective only on 1571's equipped with JiffyDOS - using this command on other drives will result in a syntax error (no formatting will take place).

Examples:

@N:NEWDISK,00	Completely formats (NEWs) a diskette and assigns the name "NEWDISK" and the ID code "00" to the diskette.
@N:BACKUP	Performs a short NEW (clears the directory and BAM) and assigns the name "BACKUP" to the diskette.
@N2:TWOSIDE,01	Formats both sides of a 1571 disk when the 1571 is in 1541 mode. Assigns the name "TWOSIDE" and the ID code "01" to the diskette.
@"N:NEWDISK,00",9	Completely formats a diskette in the drive assigned as device number 9 with the name "NEWDISK" and the ID code "00".

Disabling the 1541 "Head Rattle"

Direct:	`@B`	(JiffyDOS/64 only)
Program:	same	(JiffyDOS/64 only)

The *@B* (BUMP) command can be used to disable the 1541 head rattle (bump) routine which occurs when certain disk errors are encountered. Entering `@B` will disable the head rattle. If you wish to re-enable the head rattle, you may do so by issuing the *@UJ* command. This command does not support the default device override function.

Note: To ensure accurate formatting, `@B` will not disable the head bump at the start of a disk NEW (format).

Copying files

The JiffyDOS file copier consists of four specialized commands that enable you to make quick, convenient copies of non-copy-protected programs or data files. See the section on using the JiffyDOS file copier for step-by-step procedures on how to apply these commands.

Set Destination Device

Direct:	`@X`*dev#*
Program:	same

The *@X* command sets the destination drive for copying files. The device number specified in the command can be that of any disk drive on the serial bus, or the device number of a RAM expansion unit.

`@X10`	Set the destination drive to device 10.

Copy file from source to destination

Direct:	`*"`*filename*`"`*filetype*
Program:	same

The * (asterisk) command copies a file to the destination drive specified in the *@X* command (see above). The filetype specified by this command can be PRG, SEQ, REL or USR.

`*"TEST"PRG`	Copies the PRG file "TEST" to the destination drive specified in the last *@X* command that was issued.

<CONTROL>+<A>

The *<CONTROL>+<A>* command toggles the copy flag for all files in the directory listing. For this command to work properly, the directory must first be loaded into memory using the */$* command. When you press `<CONTROL>+<A>`, the copy flag for each file in the directory will be toggled, and then the directory will be re-listed to the screen with the new copy status for each file displayed. A file marked for copying will have an asterisk (*) next to it in the directory listing. After you have marked the files that you want to copy, the actual process of copying the files is started by entering the BASIC RUN command .

<CONTROL>+<W>

The *<CONTROL>+<W>* command toggles the copy flag of a single file in the directory listing. For this command to work properly, the directory must first be loaded into memory using the */$* command. To select the file that you wish to toggle, move the cursor to that file in the directory listing and press `<CONTROL>+<W>`. *The cursor must be kept to the leftmost edge of the screen.* A file marked for copying will have an asterisk (*) next to it in the directory listing. If the directory listing is longer than one screen, you can use the JiffyDOS "Listing Freeze" feature to easily locate the desired file(s). You can redisplay the entire directory listing at any time by entering the BASIC `LIST` command. After you have marked the files that you want to copy, the actual process of copying the files is started by entering the BASIC RUN command .

Changing the Sector Interleave

JiffyDOS provides a means for adjusting the interleave (intersector gap) for files it writes. Adjusting the sector interleave can provide faster program loading and file-access performance in instances where the standard JiffyDOS interleave values are not appropriate. Adjusting the interleave can be one of the best ways to improve performance when a 1571 disk drive is used on a C-128 in 128 mode. See the section on adjusting the sector interleave under "Getting Maximum Performance" for step-by-step procedures on how to apply this command.

Gapsize

Direct:	`@G`*gapsize*
Program:	same

The *@G* command changes the sector interleave (intersector gap) of the current JiffyDOS default disk drive to the value specified by gapsize. Valid gapsize values range from 0 to 16. Since no range checking is done by this command, be sure that you do not exceed the above limits (0-16), or else unpredictable drive operation may result during writes to disk. If you find that you have entered an illegal value, simply re-enter the command with the correct value. To reinstate the default JiffyDOS interleave, enter a gapsize of 0. Remember, changing the sector interleave is only effective on 1541, 1571 and compatible drives – do not try to change the interleave of 1581 or MSD drives. Also, please note that the default device override feature cannot be used with this command.

@G8	Set the sector interleave of the default device to 8.
@G0	Re-establish the standard JiffyDOS interleave.

Combining Files and Creating Backups

Direct: @C:*newfile=oldfile*[,*file2*]...

Program: @"C:*newfile=oldfile*[,*file2*]..."[,*dev#*]

The *@C* (COPY) command enables you to duplicate a file. @C can also be used to combine two or more text or data files into a single file. Programs may not be combined in this manner. Note that @C will duplicate a file under a different name on the same diskette, but will not copy or combine files from one diskette to another, or from one drive to another.

@C:BACKUP=ORIGINAL	Creates a new file named BACKUP which is an exact duplicate of the file named ORIGINAL.
@C:DATA=BITS,BYTES	Creates a file named DATA which is the combination of the files BITS and BYTES.

Renaming Files

Direct: @R:*newname=oldname*

Program: @"R:*newname=oldname*"[,*dev#*]

The *@R* (RENAME) command can be used to rename a file on disk. When using the @R command, remember that the new name for the file is entered first (to the left of the = sign) and that the existing name of the file is entered second (to the right of the = sign).

@R:REPORT=NOTES	Renames the file NOTES as REPORT.

Scratching (Deleting) Files

Direct: @S:*file1*[,*file2*]...

Program: @"S:*file1*[,*file2*]..."[,*dev#*]

The *@S* (SCRATCH) command can be used to delete (scratch) a file or a number of files from a disk. Files can be scratched one at a time (by entering the exact filename) or in groups, by specifying filenames explicitly or by using pattern matching and/or wild cards. The error channel may be is read at the completion of the @S command by issuing the @ command, but will not otherwise be displayed. If used after scratching, the number of files scratched will be displayed. For example, the following message indicates that two files have been scratched:

```
01, FILES SCRATCHED,02,00
```

This message indicates that no files have been scratched:

```
01, FILES SCRATCHED,00,00
```

Examples of using the @S command:

@S:TEST	Scratches the file named TEST.
@S:*	Scratches all files from a disk.
@S:T*	Scratches all files that begin with the letter T.
@S:?T	Scratches all files with names two characters long that have a "T" as the second character.
@S:BITS,BYTES,WORDS	Scratches the files BITS,BYTES and WORDS

Locking and Unlocking Files

Direct: @L:*filename*

Program: @"L:*filename*"[,*dev#*]

The *@L* (LOCK) command locks and unlocks files. Once a file has been locked, it cannot be accidently scratched and is marked with a "<" at the end of its directory entry (i.e. **32 "TESTFILE" PRG<**). The @L command works as a toggle - that is, if @L is used on an unlocked file, the file will be locked. If @L is used on an already locked file, the file will be unlocked.

Note: The LOCK command (`@L`) will not work with 1581 or MSD disk drives which are not equipped with JiffyDOS.

`@L:TESTPROGRAM`	Locks the file TESTPROGRAM (if TESTPROGRAM is not currently locked).
`@L:TESTPROGRAM`	Unlocks the file TESTPROGRAM (if TESTPROGRAM is currently locked).

Directing Output to a Printer

Direct: `@P[,`*`dev#`*`] [,`*`secondary address`*`]`

Program: same

The *@P* (Printer output toggle) command makes it easy to send BASIC program listings, directory listings, or output from the JiffyDOS `@D` and `@T` commands to a printer. Entering `@P` before issuing a command that normally produces a listing to the screen will result in the screen output being redirected to your printer (the default is device #4, secondary address=0). If you wish to specify a different printer device number and/or secondary address, include the device number and secondary address in the `@P` command as shown in the examples below. To restore output to the screen after using the `@P` command, simply enter `@P` again. Normally, the secondary address of 0 is used for uppercase/graphics printing, and a secondary address of 7 is used for uppercase/lowercase printing.

`@P`	Send screen output to printer (device #4, secondary address 0)
`@P,5`	Send screen output to printer (device #5, secondary address 0)
`@P,5,7`	Send screen output to printer (device #5, secondary address 7)
`@P`	Restore output to screen (assuming `@P` has already been used to redirect screen output to a printer).

Printing the Screen

<CONTROL>+<P>

The *<CONTROL>+<P>* (PRINT SCREEN) command outputs the current text screen to a printer. Pressing `<CONTROL>+<P>` (holding down the `<CONTROL>` key and then pressing "P") will cause the text displayed on the screen to be sent to a printer. This function automatically detects the current screen mode in order to print from the proper character set. The printer must be configured as device 4.

Disabling the JiffyDOS Function Keys

Direct: `@F`

Program: same

The *@F* (FUNCTION KEY) command is used to disable the JiffyDOS function key definitions. Typing `@F` with the function keys enabled (as they are upon power-up) will disable them. In 128 mode this will cause the standard 128 function key definition to be activated. The JiffyDOS function key definitions are active only in BASIC direct mode and are disabled when programs are run in order to avoid conflict with any program-defined function keys assignments.

Re-Enabling the JiffyDOS Function Keys

`SYS 58551`	(JiffyDOS/64)
`SYS 65137`	(JiffyDOS/128)

The *SYS* commands are used to re-enable the JiffyDOS function key assignmentss. This can be necessary if the commands have been previously disabled via the `@F` command, or after a program has been run.

`SYS 58551`	Will restore the JiffyDOS/64 function keys and commands on a C-64, SX-64 or C-128 in 64 mode.
`SYS 65137`	Will restore the JiffyDOS/128 function keys on a C-128 in 128 mode.

Disabling the JiffyDOS Commands

Direct: `@Q`

Program: same

The *@Q* (QUIT) command disables all JiffyDOS commands and function key definitions and reinstates all stock BASIC vectors. The disk drive fast-access routines are not disabled, however, and will continue to operate at full speed.

Re-Enabling the JiffyDOS Commands

`SYS 58451`	(JiffyDOS/64)
`SYS 65137`	(JiffyDOS/128)

These *SYS* commands are used to re-enable the JiffyDOS commands. This can be necessary if the commands have been previously disabled via the `@Q` command, if the JiffyDOS Kernal has just been switched in while computer power is ON, or if an applications program has altered the BASIC tokenization or execution vectors. In any of these cases, the JiffyDOS commands will not be available.

`SYS 58451`	Restores the use of all JiffyDOS/64 commands on a C-64, SX-64 or C-128 in 64 mode. This will not restore the JiffyDOS function key definitions.
`SYS 65137`	Restores the use of all JiffyDOS/128 commands on a C-128 in 128 mode.

Special Command Features

Using the Commands in Direct and Program Modes

All JiffyDOS commands may be used in BASIC direct mode and/or from within BASIC programs. When using the commands within programs, many of the command/filename strings must be enclosed in quotes. For example, `@S:FILENAME` is acceptable in direct mode only, while `@"S:FILENAME"` is the required form for program mode. The following are examples of using commands in program mode. Be sure to check the command syntax given in the previous reference section if you are uncertain how to use a command in program mode.

Examples of program-mode command syntax:

`10 @"$:*"`	Display the directory
`20 @"S0:filename"`	Scratch a file
`30 @#9`	Set the default device to 9
`40 @"D:filename"`	List a BASIC program from disk
`50 @"I:"`	Initialize the default drive

Drive Specification

All commands which perform a disk operation may specify a drive number (0 or 1) within the syntax of the command. This is useful if a dual-drive unit (i.e. MSD-2 or Commodore 4040) is sharing the serial bus with a JiffyDOS system. To specify the drive number, insert the 0 or 1 in front of the colon in each command.

Examples:

`@$1:*`	List the directory from drive 1
`@S0:filename`	Scratch a file from drive 0

When addressing 1541 and compatible drives, the 0 or 1 is not required, but a 0 may be used if desired.

Enhancements to the DOS Wedge

JiffyDOS offers these three major enhancements to the standard DOS Wedge command format.

Command Chaining

In program mode, the JiffyDOS commands may be chained with BASIC commands or other JiffyDOS commands within the same program line.

Examples:

`10 @#9:@"S:TEST":@#8`	Switch default to device 9, scratch a file, and then switch the default back to device 8.
`20 @"$:*":PRINT:@`	Display the directory, print a blank line, and display the error channel.

Note: Chaining is also possible to some degree in direct mode, as long as program-mode syntax is used, and no standard BASIC commands are intermixed with JiffyDOS commands.

String Variables

With JiffyDOS, string variables may be used as part of the standard DOS Wedge and JiffyDOS commands. This makes it possible to input disk command strings from the keyboard into a string variable, and then use that variable within a command sent to the disk drive. This makes it easy to design short, memory-efficient, interactive disk "housekeeping" programs with JiffyDOS - something which is not possible with the Commodore DOS Wedge, which forces filenames to be hard-coded into your program.

Example program using string variables:

```
10 REM SCRATCH A FILE
20 @"$"                 Display the directory
30 INPUT"FILENAME";N$   Get filename
40 @"I:"                Initialize the disk drive
50 @"S:"+N$             Scratch the file
60 END
```

Default Device Override

In JiffyDOS, the current default device may be overridden by specifying a device number at the end of each command. There are two requirements for doing this: First, the command/filename string must be in quotes (as in program mode); and second, the device number must be preceded by a comma. Using the default override is convenient in multiple-drive systems where it eliminates the bother of having to switch the default device assignment back and forth (using the *@#* or *<CONTROL>+<D>* commands) each time a command is sent to the secondary drive. The default drive override can be used in both direct and program modes.

Examples:

```
 @"S0:filename",9        Scratch a file on device 9
 @"$:*",9                Display directory of device 9
 @"",10                  Display device 10 error channel
```

The device number may also be assigned to a variable as in:

```
10 A=9                  A=device number
20 @"$",A               Directory of device 9
```

Addendum

The Super Graphics Gold Printer Interface

The Xetec Super Graphics Gold (SGG) printer interface introduces a few quirks into the system when using certain hardware and software. For instance, when using the JiffyDOS device toggle (<CONTROL><D>) with an SGG interface attached, you will see device number 14 show up. This is because the SGG responds to that device number for burst commands. Do not attempt to send JiffyDOS commands to the SGG via device number 14 or a serial bus locckup will occur. This interface can also cause serial communication problems when using a 1571 equipped with JiffyDOS, and serial bus lockups seem to occur much more frequently. We recommend sending the following commands immediately after turning on your equipment when using the SGG interface on a JiffyDOS and 1571 equipped system:

```
OPEN15,4,15:PRINT#15,"SL":CLOSE15
```

These commands should also be sent after pressing the RESET and CLEAR buttons on the SGG at the same time.

Using 1581 Partitions (subdirectories)

You may use the JiffyDOS wedge to move between partitions (often called subdirectories) on the 1581 disk drive. The partition you wish to move to must be visible in the current directory on your 1581, or else you will have to move back to the root directory. Here is the JiffyDOS syntax for moving to a 1581 partition:

Direct:	`@/0:name`
Program:	`@"/0:name"[,dev#]`

In order to move back to the root directory use the same command without a drive number and name:

Direct:	`@/`
Program:	`@"/"[,dev#]`

Also note that if you wish to use the JiffyDOS file copier to copy files to or from a 1581 partition, you must use the above commands to change to the proper partition first. For more information on how to create and use 1581 partitions, see Chapter 6 of the Commodore 1581 Users Guide.

Command Summary

Standard DOS 5.1 Wedge Commands

@	Read the disk drive error channel
@C:newfile=file	Copy a file on the same diskette
@I	Initialize the disk drive
@N:diskname,ID	Format (NEW) a diskette
@N:diskname	Short NEW
@Q	Disable the JiffyDOS commands
@R:newname=oldname	Rename a file
@S:file1[,file2]...	Scratch a file (or files)
@UJ	Reset the disk drive
@V	Validate a disk
@$	Display the disk directory
@#device	Set the default device number
/filename	Load a BASIC program
↑filename	Load and run a BASIC program
%filename	Load an ML program
←filename	Save a BASIC program

Additional JiffyDOS Commands

@B	Disable the 1541 head rattle
@D:filename	List a BASIC program from disk
@F	Disable the function keys
@G	Set interleave gapsize
@L:filename	Lock/Unlock a file
@O	Un-NEW a BASIC program
@P	Toggle printer output
@T:filename	List an ASCII file from disk
@X	Set Destination device number
*"filename"type	Copy a file
£filename	Load and run an ML file
'filename	Verify a file
<CONTROL>+<A>	Toggle all files for copy
<CONTROL>+<D>	Default drive toggle
<CONTROL>+<P>	Screen dump
<CONTROL>+<W>	Toggle single file for copy
<SHIFT>+<RUN/STOP>	Load & run first program on disk

SYS 58451	Re-enable the JiffyDOS commands (64 mode)
SYS 58551	Re-enable the JiffyDOS function keys and commands (64 mode)
SYS 65137	Re-enable the JiffyDOS commands (128 mode)

COMPATIBILITY GUARANTEE

JiffyDOS is guaranteed by Creative Micro Designs, Inc. to be compatible with all commercial hardware and software designed for use with Commodore C-64 and C-128 computers. This guarantee applies for a period of 30 days from the date of purchase. If, during the term of this guarantee, the Buyer determines that a compatibility problem exists, a full refund will be issued, less shipping and handling charges providing that the Buyer:

1. Purchased the unit directly from Creative Micro Designs, Inc.
2. Obtains a Return Authorization prior to Returning the unit postage prepaid, undamaged, with all manuals and any other materials included, to Creative Micro Designs, Inc.
3. Submits a written letter of explanation advising the nature of the compatibility problem(s), how they were encountered, the name of the incompatible hardware/software, the manufacturers name and the version number, if any.

Creative Micro Designs, Inc. shall not be responsible for any incidental or consequential damages of any kind or nature whatsoever, including lost economic opportunity or the loss of any data or information which may have resulted from the installation or use of the JiffyDOS system.

WARRANTY

Creative Micro Designs, Inc. warrants the JiffyDOS system against manufacturing defects for a period of 90 days from the date of purchase. During this period, JiffyDOS may be returned to Creative Micro Designs, Inc. for replacement or repair. All returns must be accompanied by a Return Authorization number which must be obtained by contacting Creative Micro Designs, Inc. at 413-525-0023 between 9 AM and 5 PM EST.

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Creative Micro Designs, Inc. shall not be responsible for any incidental or consequential damages of any kind or nature whatsoever, including lost economic opportunity or the loss of any data or information which may have resulted from the installation or use of the JiffyDOS system.

Creative Micro Designs, Inc. shall supply the JiffyDOS system configured to the latest manufacturing version available at the time of order and shall have no obligation to enhance, revise or update previously sold systems in the event that improved or revised versions are offered for sale at some future date.